Parkinson's disease modeled for the first time in a lab dish

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CIRM grantees at Stanford University and The Parkinson's Institute have an exciting *Cell Stem Cell* paper out today showing that they can mimic Parkinson's disease in a lab dish using reprogrammed iPS cells.

The team, which includes Renee Reijo Pera and Theo Palmer and their lab members at Stanford and William Langston at the Parkinson's Institute, started with skin cells from a woman with a genetic form of Parkinson's disease. They reprogrammed those cells back to an embryonic-like state and matured them into the type of brain cells that are affected in a person with Parkinson's disease. These cells normally help control movement and other functions in the body. In people with Parkinson's disease those cells slowly diminish and leave the person unable to control movement and other vital functions. There is currently no cure for the disease.

Initially the cells behaved normally in the lab dish, but after 30-60 days the cells showed some of the same conditions that are found in people with Parkinson's disease. A Stanford press release quotes Theo Palmer:

> "This is the first time that neurons from a Parkinson's disease patient have exhibited disease qualities in a petri dish," said Palmer. "And it provides hints of what to look for in patients who have different genetic mutations or where a cause has not been identified. By comparing neurons from patients with different forms of Parkinson's disease, we may find commonalities or differences that will help to optimize future treatments for each patient."

Today there is no cure for Parkinson's disease, and no good way to test possible drugs. With this paper, the researchers have for the first time created a way of mimicking the disease, and testing to see if drugs can reverse the symptoms in human cells.

Here's more information about stem cell therapy for Parkinson's disease and a list of all CIRM Parkinson's disease awards. This video features grantees at the Parkinson's Institute talking about their efforts to create iPS cell models of Parkinson's disease.

CIRM funding: Renee Reijo Pera (RL1-00670-1, CL-00518-1); Aleksandr Shcheglovitov (TG2-01159)
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- A.A.

Tags: Parkinson's Disease, langston, Reijo Pera, Stanford University, the parkinson's institute, palmer